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re spec  
2/11/04  
K. P. [signature]

Feb. 2, 2002  
Calvin Lee  
24294 Lynwood Dr.  
Novi, MI 48374  
(248)3476122  
cclee2@yahoo.com

Laurel E. LeFlore  
Patent Examiner  
The United States Patent and Trademark Office  
P. O. Box 1450  
Alexandria, VA 22313-1450  
Re: Application No. 10/051,503

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FEB 09 2004

Technology Center 2600

Dear Ms. LeFlore:

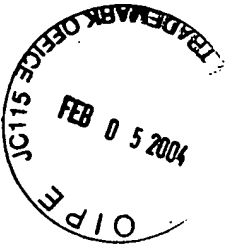
Thank you for reading and processing my patent application. I am sending you a marked-up copy of the application that shows deleted text with ~~blue strikethrough font~~ and the added text with red underlined font to answer your action items 1-4. I have also attached a final version of my application that hopefully has all the corrections that are required.

I have read the prior art patents you sent to me and summarized the differences between my invention and those prior arts in the attached pages titled as "Response for Actions". I believe the differences between my invention and the prior arts are clear and strong enough to validate my claims. For your convenience I have also attached a summary of the abstract of the claims that describes the dependencies among my claims.

I hope these modifications and the response to the actions allow my application to meet the patent requirements. Please advise otherwise and I like to thank you for all your help in advance.

I hereby certify this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelop addressed to Laurel E. LeFlore, P.O. Box 1450, Washington DC 22313-1450 on Feb. 2, 2004.

Best Regards,



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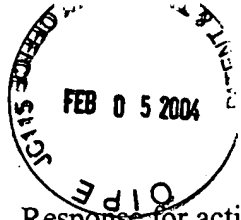


Response to the actions

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Response for actions:

Item #1

No action required

Item #2:

Corrections made accordingly in the enclosed document

Item #3:

Claim 5 is a valid dependent claim to claim 1 because it further describes about the set of mouse-to-stationary base movement or position sensing means comprising of A (one) mouse-to-stationary base movement or position sensing means that directly detects the movement or position of the mouse to the stationary base. It is different from claim 3 in which the set of mouse-to-stationary base movement or position sensing means comprising of a mouse-to-pad plate movement or position sensing means AND a pad plate-to-stationary base movement or position sensing means.

Item #4:

Claim 11 is a valid dependent claim to claim 7 because it further describes about the set of mouse-to-stationary base movement or position sensing means comprising of A (one) mouse-to-stationary base movement or position sensing means that directly detects the movement or position of the mouse to the stationary base. It is different from claim 9 in which the set of mouse-to-stationary base movement or position sensing means comprising of a mouse-to-pad plate movement or position sensing means AND a pad plate-to-stationary base movement or position sensing means

Item #5:

See below -

Item #6:

The major difference between my invention and Harris 5,488,392 is the usage of a narrow slot in the pad plate. Harris 5,488,392 has a pointer assembly 80, which has select buttons 95, sliding on guide tracks 62, which is part of an carriage assembly 50. My invention has the mouse sliding on top of a pad plate, similar to Harris 5,488,392. However, the mouse is guided by a slider which is confined by a channel underneath the pad plate. The mouse and the slider are structurally connected by a very thin connecting piece which fits in a very narrow opening (a narrow slot, to prevent objects from outside from falling through) in the pad plate. This extensive pad plate covers all the internal parts all the time no matter where the pad plate moves. Harris 5,488,392 has no pad plate with such narrow slot. When the carriage assembly slides some of the internal parts will expose. So it needs, in addition to the carriage top cover, an outer case assembly 23 or a canopy 260 to protect the internal parts from dust and other harms. The slot you mentioned in your letter (item 6 on page 4) is probably the encoder shaft access slot 64, which is used to guide the pointer assembly. Harris 5,488,392 can not have an extensive carriage top cover 61 like my invention because it will prevent the pointer assembly from sliding.

Therefore my claims 1 and 5 should be valid.

Items #7 and 8:

Because my claim 1 has not violated the patent right of Harris 5,488,392, the dependent claims 2, 3, 4, 5, and 6 should be valid.

Item #9:

Because of the same reason as I explained above, my claim 13, which is an operational claim, has not violated the patent right of Harris 5,488,392 and should be valid.

Item #10:

The difference between my invention and Harris 5,488,392 here is still the usage of a narrow slot in the pad plate. It doesn't matter if the movement between the pad plate and the stationary base in my invention, concept of using a narrow slot and a slider with a thin connecting piece makes it different from Patent 5,488,392. So my claim 7 should be valid and therefore the dependent claims 8-12 and 14 should be valid, too.

Item #11:

As explained above, the claims in my invention have not violated the claims by Harris 5,488,392. As for Jackson 6,611,139 there is nothing about a sliding mouse through a slot a rotating pad plate relative a stationary base. Therefore my claims 7-12 and 14 should be valid.

Item #12:

The click buttons claims 8-12 and the operational claim 14 are built on top of the concept of a sliding mouse through a slot a rotating pad plate relative a stationary base and therefore should be valid.

Item #13:

Claim 9 is a dependent claim of claim 7 and should be valid if claim 7 is valid.

Item #14:

Claim is an operational claim for a sliding mouse through a slot a rotating pad plate relative a stationary base and should be valid.

Item #15:

I am not sure if I should explain about the differences between my invention and these two patents. Please let me know if I should.

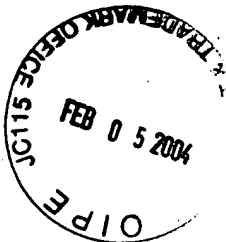


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10/051,503	01/17/2002	Calvin Chunliang Lee		1608

7590 11/19/2003  
Calvin Chunliang Lee  
24294 Lynwood Dr.  
Novi, MI 48374



EXAMINER

LEFLORE, LAUREL E

ART UNIT PAPER NUMBER

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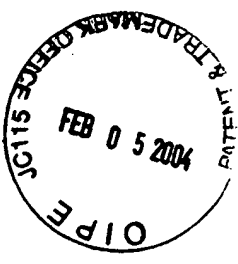
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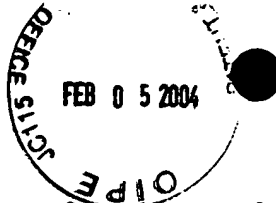
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A summary of abstract of claims



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A summary of the abstract of the claims:

Claim 1 – Stationary base, pad plate w/sliding means, mouse w/sliding means in slot of pad plate, a set of mouse-to-stationary base sensing means, computational means

Claim 2/1 – further including click buttons and on-off switches

Claim 3/1 – Said set of mouse-to-stationary base sensing means comprises a mouse-to-pad plate sensing means and a pad plate-to-stationary base sensing means, a computational means from a combination of the sensing means

Claim 4/3 - further including click buttons and on-off switches

Claim 5/1 - Said set of mouse-to-stationary base sensing means comprises one mouse-to-stationary base sensing means, computational means from said mouse-to-stationary base sensing means

Claim 6/5 - further including click buttons and on-off switches

Claim 7 - Stationary base, pad plate w/rotational means, mouse w/sliding means in slot of pad plate, a set of mouse-to-stationary base sensing means, computational means

Claim 8/7 - further including click buttons and on-off switches

Claim 9/7 - Said set of mouse-to-stationary base sensing means comprises a mouse-to-pad plate sensing means and a rotational pad plate-to-stationary base sensing means, a computational means from a combination of the sensing means

Claim 10/9 - further including click buttons and on-off switches

Claim 11/7 - Said set of mouse-to-stationary base sensing means comprises one mouse-to-stationary base sensing means, computational means from said mouse-to-stationary base sensing means

Claim 12/11 - further including click buttons and on-off switches

Claim 13 – Operation – pad plate slides relative to stationary base

Claim 14 – Operation – pad plate rotates relative to stationary base





TRADE MARK

~~Mark~~ copy of the claims

**I Claim:**

1. An integrated mouse and pad pointing device for cursor control in a display means of a computational device comprising:

- 5 (a). A stationary base,
- (b). A pad plate with a straight or curvilinear slot,
- (c). A sliding means that allows said pad plate to slide relative to said stationary base,
- (d). A pad plate holding means that prevents said pad plate from separating  
10 from said stationary base when said pad plate slides relative to said stationary base,
- (e). A mouse,
- (f). A sliding means that allows said mouse to slide in said slot of said pad plate,
- 15 (g). A set of movement or position sensing means that detects the movement or position of said mouse relative to said stationary base and generates and sends a signal of the movement or position of said mouse relative to said stationary base to a mouse movement or position computing means,
- (h). Said mouse movement or position computational means computes and  
20 determines the movement or the position of said cursor in said display means of said computational device from said signal of the movement or position of said mouse relative to said stationary base.

2. An integrated mouse and pad pointing device for cursor control in a  
25 display means of a computational device, as stated in claim 1, further including

- (a). One or a plurality of click buttons that are installed on said mouse,
- (b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the

clicking of said click button when said click button over said on-off switch means is clicked or pressed whereby the clicking of said buttons may be conveniently executed at the same time as when said mouse is being moved.

5

3. An integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 1, wherein

(a). Said movement or position sensing means comprises a mouse-to-pad movement or position sensing means that detects the movement or position of said mouse in said slot of said pad plate relative to said pad plate and a pad-to-base movement or position sensing means that detects the movement or position of said pad plate relative to said stationary base that generate and send a mouse-to-pad movement or position signal of said movement or position of said mouse in said slot of said pad plate relative to said pad plate and a pad-to-base movement or position signal of said movement or position of said pad plate relative to said stationary base, respectively, to said mouse movement or position computing means whereby the movement or position of said cursor on said display means of said computational device is determined by a combination of said mouse-to-pad movement or position signal and said movement or position signal of said pad-to-base movement or position signal.

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4. An Integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 3, further including

25

(a). One or a plurality of click buttons that are installed on top of said mouse,

(b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the clicking of said click button when said click button over said on-off switch means is clicked or pressed whereby the clicking of said click buttons may be conveniently executed at the same time as when said mouse is being moved.

5. An integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 1, wherein

(a). Said movement or position sensing means comprises a movement or position sensing means that detects the position or movement of said mouse in said slot of said pad plate relative to said stationary base that generates and sends a mouse movement or position signal to said mouse movement or position computing means whereby the movement or position of said cursor on said display means of said computational device is determined by said mouse movement or position signal.

6. An Integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 5, further including

(a). One or a plurality of click buttons that are installed on top of said mouse,

(b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the clicking of said click button when said click button over said on-off switch means is clicked whereby the clicking of said

click buttons may be conveniently executed at the same time as when said mouse is being moved.

7. An integrated mouse and pad pointing device for cursor control in a display means of a computational device comprising:

- (a). A stationary base,
- (b). A pad plate with a straight or curvilinear slot,
- (c). A rotational means that allows said pad plate to move pivotally about said stationary base,
- (d). A pad plate holding means that prevents said pad plate from separating from said stationary base when said pad plate to slide relative to said stationary base,
- (e). A mouse,
- (f). A sliding means that allows said mouse slides in said slot of said pad plate,
- (g). A set of movement or position sensing means that detects the position or movement of said mouse and generates and sends a signal of the movement or position of said mouse to said computational device to a mouse movement or position computing means,
- (h). Said mouse movement or position computational means computes and determines the movement or the position of said cursor in said display means of said computational device from said signal of the movement or position of said mouse relative to said stationary base.

8. An integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 7, further including

- (a). One or a plurality of click buttons that are installed on top of said mouse,

(b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the clicking of said click button when said click button over said on-off switch means is clicked whereby the clicking of said click buttons may be conveniently executed at the same time as said mouse is being moved.

9. An integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 7, wherein

(a). Said movement or position sensing means comprises a mouse-to-pad movement or position sensing means that detects the movement or position of said mouse in said slot of said pad plate relative to said pad plate and a rotational pad-to-base movement or position sensing means that detects the rotational movement or position of said pad plate pivotally relative to said stationary base that generate and send a mouse-to-pad movement or position signal of said movement or position of said mouse in said slot of said pad plate relative to said pad plate and a rotational pad-to-base movement or position signal of said rotational movement or position of said pad plate pivotally relative to said stationary base, respectively, to said mouse movement or position computing means device whereby the movement or position of said cursor on said display means of said computational device is determined by a combination of said mouse-to-pad movement or position signal and said rotational pad-to-base movement or position signal.

10. An Integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 9, further including

(a). One or a plurality of click buttons that are installed on top of said mouse,

(b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the clicking of said click button when said click button over said on-off switch means is clicked or pressed whereby the clicking of said click buttons may be conveniently executed at the same time as when said mouse is being moved.

11. An integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 7, wherein

(a). Said movement or position sensing means comprises a movement or position sensing means that detects the movement or position of said mouse in said slot of said pad plate relative to said stationary base that generates and sends a mouse movement or position signal to said mouse movement or position computing means whereby the movement or position of said cursor on said display means of said computational device is determined by said mouse movement or position signal.

12. An Integrated mouse and pad pointing device for cursor control in a display means of a computational device, as stated in claim 11, further including

(a). One or a plurality of click buttons that are installed on top of said mouse,

(b). An on-off switch means attached to said mouse under each of said click buttons that sends a signal to said computational device to signal the clicking of said click button when said click button over

said on-off switch means is clicked whereby the clicking of said click buttons may be conveniently executed at the same time as when said mouse is being moved.

5 13. A cursor control method for a computational device with a display means comprising steps of

(a). Sliding a mouse in a slot of a pad plate and dragging said mouse against said pad plate to slide relative to a stationary base whereby the movement or position of said mouse covers a predetermined area corresponding to the display area of said display means of said computational device,

10 (b). Detecting the movement or position of said mouse in said predetermined area by a set of movement or position sensing means and sending a signal of the movement or position of said mouse to said computational device for determining the movement or position of said cursor in the display area of said display means of said computational device.

15 14. A cursor control method for a computational device with a display means comprising steps of

(a). Sliding a mouse in a slot of a pad plate and dragging said mouse against said pad plate to move pivotally about a stationary base plate whereby the movement or position of said mouse covers a predetermined area corresponding to the display area of said display means of said electronic computational device,

20 (b). Detecting the movement or position of said mouse in said predetermined area by a set of movement or position sensing means and sending a signal of the movement or position of said mouse to said computational device for determining the movement or position of said cursor in the display area of said display means of said computational device.



## **An Integrated Computer Mouse and Pad Pointing device**

**Abstract:** An integrated mouse and pad pointing device is thin and compact that can be built into a laptop computer or other portable computational devices such as  
5 a personal data assistant (PDA) or a cell phone with a cursor to replace the cursor control devices such as the touch pad or the pointing stick. This integrated mouse and pad pointing device has a mouse sliding in a slot of a pad plate while the pad plate slides relative to or rotates about a stationary base plate. By sensing the movement of the mouse in the slot relative to the pad plate and the movement of  
10 the pad plate relative to the stationary base plate, the movement of the mouse and hence the cursor is determined. This mouse works like a conventional mouse so it is ergonomically easy and accurate to use to control the movement of the cursor. This integrated mouse and pad pointing device with the built-in click buttons in a portable computational device such as a laptop computer allows a convenient  
15 operation of controlling the cursor movement and the clicking of the buttons at the same time. A stand-alone version of this device may be plugged in to a desktop computer and will work on any condition.



Final copy of my application